CASEY JOHNSON, Claremont Graduate University Spectrum of different Stieltjes star graphs

The spectrum of a single Stieltjes string, a thread bearing a finite number of point masses, is uniquely determined by the number and size of the masses. In 2002, F.R. Gantmakher and M.G. Krein solved the inverse problem which identified the location and mass of each bead given just the spectrum corresponding to Dirichlet boundary conditions and the spectrum corresponding to Neumann boundary conditions. Joining multiple Stieltjes strings of various lengths together to form a star graph shape which are often symmetric has fascinating implications on the spectrum of the graph. For these new star graphs, is the spectrum still uniquely determined? What can we say about the spectrum?